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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,738	03/30/2005	Yasuyuki Mizuno	511.44961X00	1963
20457 7590 10/11/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER SELLERS, ROBERT E	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 10/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/529,738	Applicant(s) MIZUNO ET AL.	
	Examiner Robert Sellers	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-49 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/30/05, 9/19/06 &amp; 12/11/06</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1, 2, 4, 5, 7 and 45, drawn to a composition comprising a polycyanate ester and a biphenyl epoxy resin.

Group II, claim 3, drawn to a composition comprising a polycyanate ester, a biphenyl epoxy resin and a polyphenylene ether.

Group III, claim 6, drawn to a composition comprising a polycyanate ester, a biphenyl epoxy resin and a flame retardant.

Group IV, claims 8, 9, 11, 12, 14-16, 18, 19, 21, 29, 30, 32, 33 and 35, drawn to a composition comprising a polycyanate ester, a biphenyl epoxy resin and a monovalent phenol.

Group V, claims 10, 17, 31 and 44, drawn to a composition comprising a polycyanate ester, a biphenyl epoxy resin, a monovalent phenol and a polyphenylene ether.

Group VI, claims 13, 20 and 34, drawn to a composition comprising a polycyanate ester, a biphenyl epoxy resin, a monovalent phenol and a flame retardant.

Group VII, claims 22, 23, 25, 26, 28, 36, 37, 39, 40 and 42, drawn to a composition comprising a polycyanate ester, a monovalent phenol, a biphenyl epoxy resin and another monovalent phenol.

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Group VIII, claims 24 and 38, drawn to a composition comprising a polycyanate ester, a monovalent phenol, a biphenyl epoxy resin, another monovalent phenol and a polyphenylene ether.

Group IX, claims 27 and 41, drawn to a composition comprising a polycyanate ester, a monovalent phenol, a biphenyl epoxy resin, another monovalent phenol and a flame retardant.

Group X, claim 43, drawn to a composition comprising the reaction product of a polycyanate ester and a monovalent phenol in the presence of a polyphenylene ether.

Group XI, claims 46 and 48, drawn to a prepreg derived from a composition comprising a polycyanate ester and a biphenyl epoxy resin.

Group XII, claim 47, drawn to a metal clad laminated board obtained from a prepreg prepared from a composition comprising a polycyanate ester and a biphenyl epoxy resin.

2. The inventions listed as Groups I to XII do not relate to a single general inventive concept under PCT Rule 13.1 because they lack the same or corresponding special technical feature under PCT Rule 13.2 for the following reasons:

The special technical feature is the combination of a polycyanate ester and biphenyl epoxy resin as acknowledged on page 5, lines 15-27 of the specification.

Japanese Patent No. 2002-309085 (HCAPLUS abstract and translation, pages 4-5,

Example 1) shows a blend of a bisphenol A cyanate ester within formula (I) of claim 11 and a biphenyl aralkyl epoxy resin within formula (IV) of claim 12.

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Japanese Patent No. 2001-240723 (abstracts) discloses a phenol-modified polycyanate ester as denoted in claim 16 and an epoxy resin such as a biphenyl epoxy resin (translation, page 7, paragraph 23, line 4). Accordingly, the special technical feature does not make a contribution over the prior art, thereby validating a holding of lack of unity.

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

(A) The polycyanate esters of formula (I) or (II) as depicted in claims 4, 11, 18, 25, 32 and 39 such as the bisphenol A dicyanate ester used in Example 1 on page 43, lines 35-36 of the specification.

(B) The biphenyl epoxy resins of formula (III) or (IV) as exhibited in claims 5, 12, 19, 26, 33 and 40 such as the 3,3',5,5'-tetramethylbiphenol diglycidyl ether shown in Example 1 on page 44, lines 1-3.

(C) Contingent upon the election of Group IV, V, VI, VII, VIII, IX or X, items (A) and (B) hereinabove and the monovalent phenol(s) such as the p-( $\alpha$ -cumyl)phenol employed in Example 4 on page 45, lines 11-12.

(D) Contingent upon the election of Group III, VI or IX, items (A), (B), (C) if appropriate, and the flame retardants of claims 6, 13, 20, 27, 34 and 41 such as the brominated polystyrene utilized in Example 11 on page 63, lines 8-9 of the specification.

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(E) The presence or absence of the antioxidant of claims 7, 14, 21, 28, 35 and 42, wherein if its presence is elected, a particular species is designated.

(F) Contingent upon the election of Group IV, the items set forth hereinabove and the composition obtained by the method of either claim, 8, 15 or 30.

(G) Contingent upon the election of Group V, the items set forth hereinabove and the composition of either claim 10, 17, 31 or 44.

(H) Contingent upon the election of Group VII, the items set forth hereinabove and the composition obtained by the method of either claim 23 or 37.

Applicant is required, in reply to this action, to elect a single species ***within each of items (A) to (H) if appropriate*** to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species (MPEP § 809.02(a)).

Claims 1-49 are generic.

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4. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the reasons espoused with respect to the holding of lack of unity hereinabove.

A telephone call was made to William I. Solomon on September 24, 2007 to request an oral election to the above restriction and election of species requirement, but did not result in elections being made.

The reply to this requirement to be complete must include (i) an election of an invention and species to be examined even though the requirement is traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention and species.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should the traverse be on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if one of the inventions or species is found to be unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention or species.



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Upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application.

Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. Claims 1, 2, 5-8 and 17-19 of copending application no. 11/264,052 denote a phenol-modified polycyanate ester mixed with an epoxy resin such as a biphenyl aralkyl epoxy resin illustrated as formula (VI) in claim 8.

6. Japanese Patent No. 2000-191776 and European Patent No. 1,076,262 designated as a X reference in the International Search Report discloses a copolymer of a mixture of polycyanate esters combined with an epoxy resin such as a biphenol epoxy resin (translation, page 4, line 4). The aforementioned Japanese patents are considered to be more relevant to the claimed subject matter.

7. European Patent No. 1,076,262 deemed to be a X reference in the European Search Report sets forth a biphenyl epoxy acrylate having terminal (meth)acrylate groups as opposed to the claimed biphenyl epoxy resin with terminal epoxy groups.



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8. The term "obtainable" used to characterize the reactions of claims 15, 16 and 23 renders the claims vague regarding whether the reaction sequence is actually required.

Note that claims 29, 36, 37 and 43-49 employ the more definitive word "obtained."

9. There is no antecedent basis for Components (A), (B) and (C) of claim 16 in claim 15 wherefrom it depends since claim 15 does not label the components by such letters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Robert Sellers/

Robert Sellers  
Primary Examiner  
Art Unit 1712

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9/24/2007